FLIGHT
The AIRCRAFT ENGINEER & AIRSHIPS

First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 879. (No. 44, Vol. XVII.) OCTOBER 29, 1925 [Weekly, Price 6d. Post free, 7d.

Flight

*The Aircraft Engineer and Airships*

*Editorial Offices*: 36, GREAT QUEEN STREET, KINGSWAY, W.C.2. Telegrams: Truditur, Westcent, London. Telephone: Gerrard 1828.

Annual Subscription Rates, Post Free:
United Kingdom .. 30*s.* 4*d.* Abroad .. .. 33*s.* 0*d.**

These rates are subject to any alteration found necessary under abnormal conditions and to increases in postage rates.

* *Foreign subscriptions must be remitted in British currency.*

CONTENTS



**DIARY OF FORTHCOMING EVENTS**

*Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:—*

| 1925 | | |
|---|---|---|
| Oct. 29 | .... | Mr. W. L. Cowley. "Aircraft Transport Economy," before R.Ae.S. |
| Nov. 4 | .... | Group-Capt. W. F. MacNeece. "The General Principles of Air Defence," before Royal United Service Institution. |
| Nov. 10 | .... | Wing-Com. T. R. Cave-Brown-Cave, C.B.E., F.R.Ae.S. "The Evaporative Cooling of Aero Engines and Condensation of their Exhaust Gas," before R.Ae.S. |
| Nov. 10 | .... | Mr. M. L. Bramson, A.C.G.I. "Practical Flying," before Inst.Ae.E. |
| Nov. 11-14 | | Eliminating Trials for Coppa d'Italia, Rome. |
| Nov. 12 | .... | Mr. H. B. Howard, A.F.R.Ae.S. "Some Problems in Aeroplane Structural Design," before R.Ae.S. |
| Nov. 15 | .... | Coppa d'Italia, Rome. |
| Nov. 18 | .... | Maj.-Gen. Sir J. H. Davidson, M.P. "Imperial Defence and the Co-ordination of the Three Services," before Royal United Service Institution. |

# EDITORIAL COMMENT.

THERE have been two main subjects of conversation in areonautical circles during the last week: the Schneider Cup Race, and the Cierva "Autogiro." At first sight it might appear to be a far cry from one to the other; yet who shall say but that in years to come the connection between the two may not become a very close one. At the present moment nothing is known about the "Autogiro" as a speed machine. In fact, very little is known about the "Autogiro" at all, beyond the fact that a more or less experimental form of it flies rather well. It is, therefore, quite impossible at the present juncture to express any definite opinion as to whether or not the "Autogiro" will ever shine particularly as a speed machine. As far as can be seen at present, the position appears to be this, that the one remarkable feature of the "Autogiro", as hitherto evolved, is its extraordinary speed-range, and it is mainly the question of speed range which limits the maximum speed of racing machines.

**The Schneider Race**

It is, of course, perfectly true that every time a new world's speed record has been established one is very apt to fall into the error of believing that no very much greater speed is attainable without a radical change in design. Yet history appears to show, not only that as our knowledge increases and improvements in material are effected the speeds go up and up, but that the racing machine of today becomes, or forms the basis for, the service machine of tomorrow. Perhaps it would be more accurate to say that today's racing speeds become tomorrow's service speeds.

It is fairly certain that few could have anticipated the increase in speed established by Lieut. James Doolittle in raising the 1923 figure for the Schneider Cup Race from 177·38 m.p.h. to 232·573 m.p.h. in 1925, an increase of 55 m.p.h. in two years. As always after a new speed record has been established, the question naturally arises how much farther are we likely to go with machines as we know them today. On

technical grounds it is difficult to give an answer to that question, but on an historical basis, assuming the curve of speeds to continue at approximately its present slope, there is justification for believing that we have not yet approached the limit. It was an American pilot, Lieut. Williams, if we are not mistaken, who, in answer to this very question, is said to have replied that the speed record would go to the country which could find the biggest fool to fly its racing machines. That, of course, is putting the answer rather bluntly, and personally we should prefer a vastly different word for the pilot, but there is no gainsaying the fact that the top speeds are to a very great extent determined by the landing speeds which the pilot is willing to risk. The skill shown by pilots of modern racing machines far exceeds anything that could have been dreamt of a comparatively few years ago, and the end does not appear to be in sight yet. It has often been suggested that a limit be placed on the landing speed of racing machines. With that view we do not agree, and as we have stated in FLIGHT repeatedly, the designers and pilots of machines are, after all, the best judges of this subject. Fixing an arbitrary figure for landing speed would be an unsatisfactory basis, since what might be a dangerous speed for one type of machine and one pilot might be a perfectly safe speed for another pilot on another machine, and thus a limit on landing speed would be likely to hamper development. The justification for this view is, we think, to be found in the history of air racing. If the suggestion to limit the landing speed of racing machines, advanced many years ago (in fact, it has been put forward regularly, almost since the very beginning of flying), had been adopted, there would not have been in 1925 aeroplanes capable of flying at 280 m.p.h., and seaplanes with a top speed of 240 m.p.h. or more. That there is risk in flying modern racing machines cannot, of course, be denied, but that is the price paid for progress, and so long as those directly concerned are prepared to accept the risk, we fail to see that it is anyone's business to call a halt.

As regards this year's Schneider Cup Race, the story is a sad one from a British point of view. Ill-luck seems to have dogged the British team from the very beginning. First Capt. Biard slipped on the deck of the steamer on the way across to America and injured his wrist. Then his Supermarine-Napier S.4 crashed in the preliminary tests, and can apparently be considered a complete write-off. Then Hinkler crashed on the Gloster-Napier III; and, finally, the other Gloster-Napier III, piloted by Capt. Broad, failed to do itself, its designer, and its pilot justice in the race, attaining a speed which is known to be far below the maximum of which the machine is capable.

The chapter of mishaps is an extremely regrettable one, and the two companies concerned deserved better luck. The Supermarine Aviation Works have done a tremendous amount of valuable work in developing the flying-boat seaplane, and for a great number of years carried on without any Government encouragement. Yet so strong was their faith in the future of the seaplane type of machine that they persevered in spite of all obstacles, and of recent years they have had the gratification of seeing that faith justified. The loss of their beautiful monoplane is therefore a particularly severe blow, and we are sure everyone will sympathise with them.

The Gloucestershire Aircraft Co. has ever since its formation pursued a very strong racing policy, and the firm can be said to have done more than any other in developing racing aeroplanes in this country. So strong was the firm's belief in the utility of air racing that when the Aerial Derby races during the last few years were abandoned on account of lack of entries, the Gloucestershire Aircraft Co. turned its attention to racing seaplanes. That the firm's belief in the useful purpose served by air racing was justified is proved by the success of the Gloster "Grebe," with its developments, now being supplied to the Royal Air Force, which is a direct outcome of the firm's experience with racing machines. Here again the loss of one machine and the relatively disappointing showing of the other is a totally unmerited stroke of bad luck, and we can only hope that tests over the 3 km. course, which will give a much truer indication of the real capabilities of the machine, will demonstrate that the results in the Schneider Cup Race were far from being representative of the speed which its designers had contemplated.

The one bright spot in this sad story appears to have been the Napier racing engine, which from beginning to end does not seem to have given any trouble at all, and the remarkably smooth acceleration and running of which caused favourable comment from all sides. This engine is a triumph of engineering skill, and has attained a power-weight ratio that has probably never been exceeded.

One thing is certain: Great Britain *must* build machines for next year's Schneider Trophy race. The Americans have now won the trophy twice, and should they win it again in 1926 it will become their property, and this would mark the finish of the Schneider races. But for the various mishaps this year, Great Britain was certainly not hopelessly outclassed, and there is no doubt our designers have learned a great deal from this year's race. If next year's machines are put in hand at once there should be a good chance of capturing the Cup, but a start must be made at once so as to allow our designers really to produce their very best.

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**Royal Air Force Officers from the Universities**

THE Air Ministry announces that, on the recommendation of their respective universities, the under-mentioned graduates have been appointed to permanent commissions as Pilot Officers in the General Duties Branch of the R.A.F., with an ante-date in each case of 12 months' seniority under the University candidates' scheme of entry.

Joseph Clarence Cross Slater and Charles Francis Carey Coaker (Cambridge University).

Richard Fitzgerald Findlay (Oxford University).

In addition, Mr. William Harry Osborne Rumfitt, of Cape Town University, who was recommended by the Governor-General of the Union of South Africa, under the University candidates' scheme applicable to the Dominions, has been appointed to a permanent commission as a Flying Officer with an antedate of 12 months' seniority, on satisfactory completion of a probationary period as Pilot Officer.

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**Aero Golfing Society, at Walton Heath, on October 22**

THE Autumn Challenge Cup presented by Cellon (Richmond), Limited, was played off. The results were as follows:

Lord George Wellesley 82 — 8 = 74; C. Ruault 86 — 4 = 82; E. N. Clifton 87 — 4 = 83; E. J. B. How, 87 — 4 = 83; Lieut.-Col. J. T. C. Mocre-Brabazon 83 + 1 = 84.

In the Fourball Foursomes—Captain's prize presented by Sir Henry White-Smith, C.B.E., the following were the results:

A. J. A. Wallace Barr (4) and E. N. Clifton (4), 6 up; C. Ruault (4) and R. Reid (2), 3 up; E. J. B. How (4) and L. V. Pearkes (6), 1 up; J. T. C. Moore-Brabazon (+ 1) and Com. W. Briggs (5), 1 down.

FLIGHT

# THE ALBATROS L.69

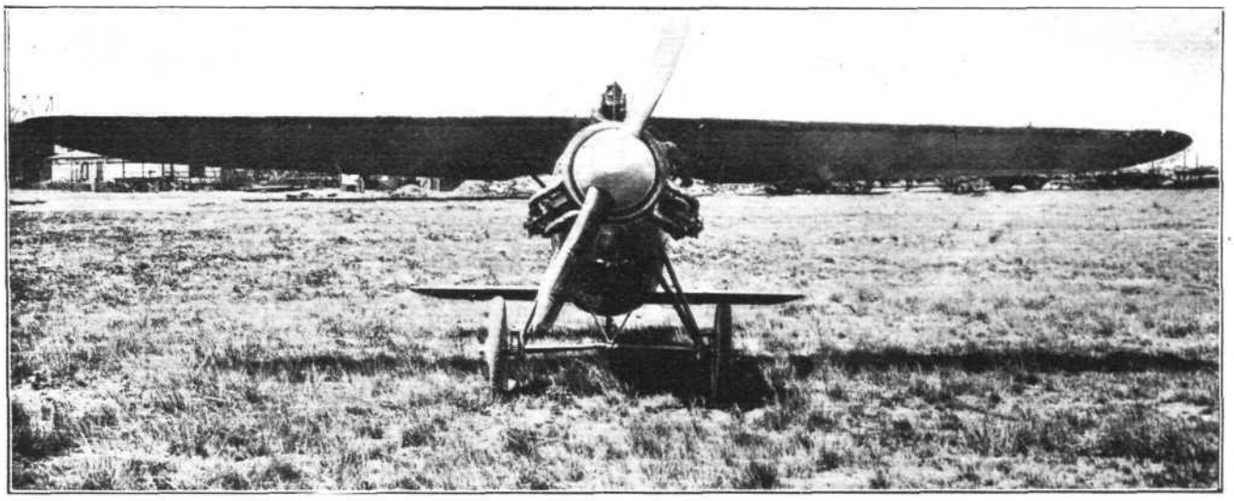
## "Bristol"-Engined Monoplane Wins "Round Saxony" Flight

IT will be recollected that in the "Round-Germany" flight, which took place in June last, a very promising machine, which did not get an opportunity of really showing what it could do, was the Albatros L.69 monoplane, fitted with Bristol "Lucifer" engine. Such short flights as were made by the machine demonstrated that it was very fast, and, but for the fact that minor defects were discovered at the last moment, there is little doubt that the L.69 would have done well in the Rundflug. These troubles were of a minor character only, such as are to be expected with any new type of machine, and if it had been possible to finish the machine a month or so earlier, these defects would have been discovered, and doubtless would have been rectified in time for the Rundflug.

That there was nothing much the matter with the machine has now been amply demonstrated by the fact that in the recent "Round-Saxony" flight, the Albatros L.69, piloted by Student, won first prize in Class D (machines with engines of more than 100 h.p.).

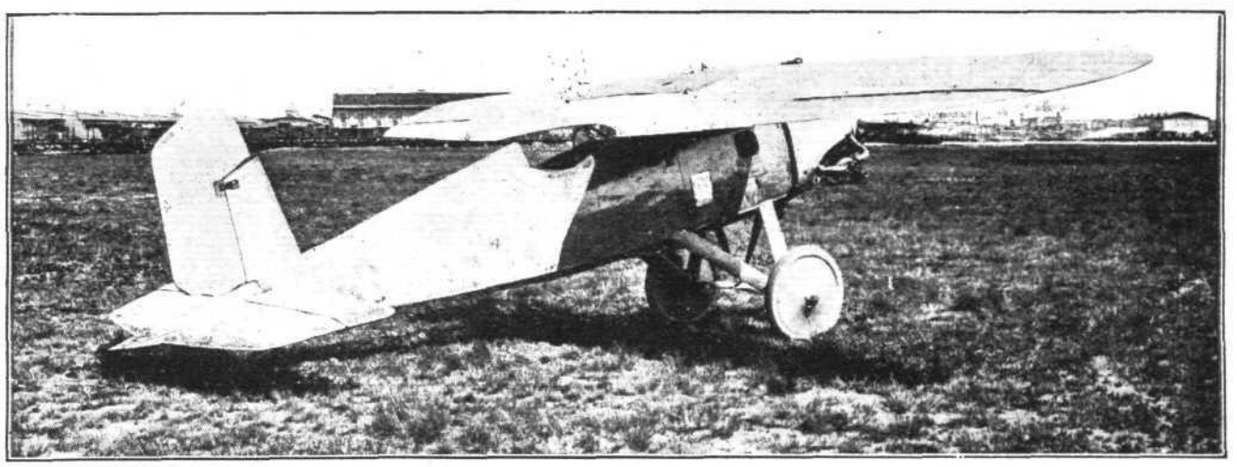
Before giving a description of the Albatros machine, it may be of interest to outline very briefly the nature of the "Round-Saxony" flight. This consisted of two laps of the circuit: Chemnitz-Plauen-Leipzig-Grossenhain-Bautzen-Zittau-Dresden-Chemnitz. The competition was a speed race, but instead of handicapping the various machines, as would probably have been done in this country, the competitors were divided into four classes according to the horse-power of their engines. In Class "D" the Albatros L. 69, piloted by Student, completed the two circuits of the course in 6 hours 14 mins. flying time, which corresponds to an average speed of 165 kms./hr. (102·5 m.p.h.). The next-best time was made by another Albatros, a type L.68 biplane with Siemens engine. This machine, owing to the fact that its engine was rated at just under 100 h.p., was classed "C," and covered the course in 7 hours 57 mins., or at an average speed of 130 kms./hr. (80·75 m.p.h.).

The Udet "Flamingo" was third home with a flying time of 8 hours 28 mins., a speed of 122 kms./hr. (76 m.p.h.).



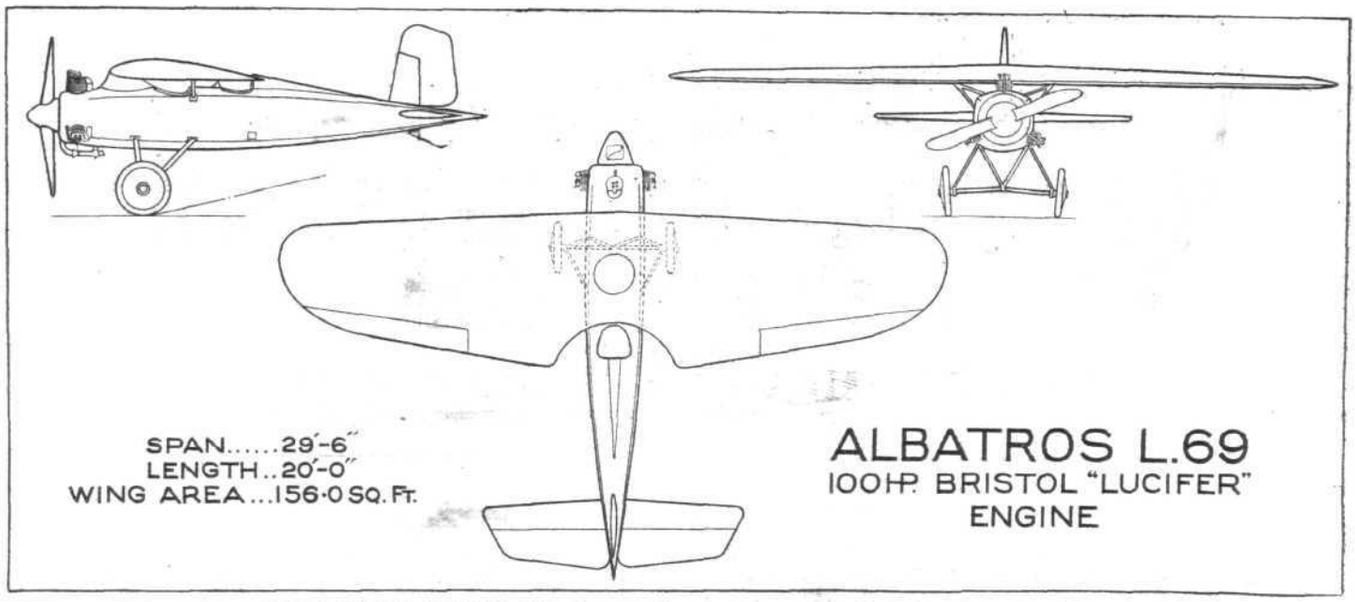
**THE ALBATROS L.69: This front view shows the clean lines of the machine, and the cowling of the Bristol "Lucifer" engine.**

The Albatros L.69 was designed as a high-speed sports monoplane, and, although it is a cantilever monoplane, it has been designed with such high factors of safety that it may be stunted to almost any extent. No figures relating to the actual speed of the "Bristol"-engined machine are available, but it may be taken for granted that the average speed maintained during the "Round-Saxony" flight does not represent anything like the actual top speed of which the machine is capable.



**THE ALBATROS L.69: Three-quarter rear view. The fuselage comes to a point at the back, this cone being detachable so as to give access to the control levers, etc.**

Three-ply wood enters very largely into the construction of the Albatros L.69, this being the material used not only for covering the fuselage, but the greater portion of the wing. Probably one of the first firms in the world to make such extensive use of three-ply was the Albatros works, where, as far back as 1913, a two-seater biplane was produced in which the fuselage was ply-wood covered. One of these




**THE ALBATROS L.69 : General arrangement drawings, to scale.**

machines was brought to England in 1914, and was demonstrated at Hendon and Farnborough by the German pioneer pilot, Robert Thelen. More recently, various Albatros single-seater fighters will be remembered from the war period, several being on view once upon a time at the exhibition of captured enemy aircraft at the Agricultural Hall, Islington. In the L.69 the Albatros designer, Herr Schubert, has applied his long experience of ply-wood construction to a somewhat more refined design, and the L.69 fuselage and wing are very fine examples of ply-wood construction.

The L.69 is a two-seater, with the pilot placed under the trailing edge of the wing, which has been cut away at this point to give access to the cockpit and also to improve the view. The passenger's cockpit is immediately under the wing, and is entered through a trap door in the wing itself. Thus the passenger is rather closely shut in, and, in case of a crash, his chances of getting out of the wreck would probably not be as good as might be desired. As the machine was designed mainly for racing, this feature of the design can perhaps be regarded as one of those compromises which are permissible in a racing machine.

The monoplane wing is, as already stated, mainly covered with three-ply, although the hinged trailing edge and ailerons are steel tube structures covered with fabric. The whole trailing edge is hinged, and a variable camber gear is incorporated in the design. The ailerons are operated by torque rods and cranks, no cables being employed. An unusual feature in the design is the mounting of the wing on the fuselage, which might be described as "three-point suspension" in that the front spar is supported at one point only by a form of fin built integral with and growing out of the fuselage, while the rear spar has two supports in the form of a steel bracket on each side, raked outwards from the top of the fuselage. The wing can be dismantled by undoing the connections at these three points. The Bristol "Lucifer" engine is mounted on a structure of steel tubes attached to the main fuselage at four points, the supports being so designed that the whole engine mounting can be swung out so as to give access to the back of the engine. All controls, petrol, leads, etc., pass through the fire-proof bulkhead near the starboard side, so that there are no joints to break when the engine mounting is swung out for inspection. Considerable care has been taken to streamline the engine, and a large spinner is placed over the airscrew boss.

The petrol tank is mounted in the centre section of the monoplane wing, which position gives sufficient height for direct gravity feed to be employed.

The tail of the L.69 is of normal type, except that owing to the fact that the fuselage is provided with a fairing terminating in a point at the rear, the rudder is wholly above the tail 'plane. The rudder is balanced with the conventional form of horn balance, although this should scarcely be necessary in such a small machine. The tail skid moves with the rudder for steering on the ground.

The undercarriage is of conventional type, and is in the form of steel tubes with streamline fairings.

The main dimensions of the Albatros L.69 are shown on the accompanying scale drawings. The only information relating to weights is that the useful load is 201 kgs. (445 lbs.). The top speed of 170 kms./hr. (105·6 m.p.h.) is mentioned, but we believe that this refers to the machine fitted with the Siemens engine. With the Bristol "Lucifer" it seems probable that a somewhat higher speed is attained, and a rough estimate indicates that the top speed may be in the neighbourhood of 110 m.p.h. The machine is fairly heavily loaded, and it was noticed at the Rundflug that it took rather a long run to get off. The following figures for climb probably also refer to the Siemens-engined type, and may be slightly better in the case of the machine fitted with Bristol "Lucifer": 500 metres in two minutes, 1,000 metres in four minutes. The landing speed is given as 105 kms./hr. (65 m.p.h.).

### Cairo-Kano R.A.F. Flight Starts

THE R.A.F. flight from Cairo to Kano (Nigeria) started at 7 a.m. on October 27, when Squadron Leader Arthur Conningham, Flight-Lieuts. H. W. Baggs and H. V. Rowley, Flight-Sergeant Evans and Sergts. Kennedy and Grant left Helwan aerodrome in three D.H.9a biplanes (400 h.p. "Liberty" engines.) The latter are standard machines except for additional petrol tanks and special under-carriages. All three machines arrived at Wady Halfa at 1.45 p.m. Among the large gathering which saw them off were Lieutenant-General Sir Richard Haking, G.O.C. the British troops in Egypt, and Air Vice-Marshal Sir Oliver Swann, Air Officer Commanding Royal Air Force, Middle East, Sir George Lloyd, the High Commissioner, sent a message of good wishes.

### Croydon Aerodrome Improvements

A START has now been made on the improvements to Croydon aerodrome. The existing war-time buildings will be replaced by new up-to-date buildings. Plough Lane will be diverted, thus considerably enlarging the space available for taking off and landing. A special anti-fog and night-landing installation is also being laid down. This consists of a series of parallel trenches across the aerodrome in which are sunk Neon-light tubes, protected by thick plate-glass covers flush with the ground. The light from these tubes has remarkable fog-penetrating properties. In between the light trenches, "Leader cables" will be laid, so that in the event of fog, or at night, the pilot of an in-coming aeroplane after having been guided to Croydon by the usual wireless direction-finding system, will be able to locate his exact position—directionally as well as to altitude—above the aerodrome by means of the "Leader cable," and then land through the agency of the Neon lights.

### Zeppelin Raid Memorial

ON October 31 the Mayor of Camberwell will unveil a tablet at the corner of Clamington Road and Albany Road, in memory of 22 persons killed by a Zeppelin bomb in an air raid in 1917.

FLIGHT

# THE 1925 SCHNEIDER TROPHY RACE

## Won by Lieut. James Doolittle at Average Speed of 232·573 m.p.h.

THE race for the 1925 Schneider Trophy, to which aviation circles all over the world had looked forward with the keenest interest, has resulted in a magnificent victory for the United States. It was won by the U.S. Army Air Service pilot Lieut. "Jimmie" Doolittle, who, flying a Curtiss-Army Racer fitted with Curtiss V-1400 racing engine, covered the course at the terrific average speed of 232·573 m.p.h. When it is realised that this is 6 m.p.h. faster than Capt. Biard's world's speed record on the Supermarine-Napier S.4, established over a straight-line course, whereas the Schneider course was a triangular one necessitating some twenty turns, the speed is truly astonishing. At the moment of going to press there is not sufficient information available to enable an accurate explanation to be made, but according to reports Lieut. Doolittle's cornering was superb, and must have been to a great extent responsible for the excellent performance. Reports from America—coming, it is thought, from a reliable source—indicate that one particular engine out of the 12 built for the Pulitzer and Schneider Trophy races proved exceptionally good, as will often happen in a batch of engines, and it is believed that this engine was fitted in Doolittle's Curtiss-Army Racer. This fact, taken in conjunction with the masterly handling of the machine, would seem to account for the wholly unexpected average speed maintained, which was, of course, far and away ahead of the speeds of the British and Italian competitors.

At the same time, we may take some consolation from the fact that the British Gloster-Napier III secured second place, two of the American machines having failed to complete the course. The speed attained by the British challenger was disappointingly low, only 199·169 m.p.h., and it is quite certain that it represents nothing like the maximum speed of which the Gloster-Napier III is capable. What was the cause of the relatively poor showing cannot be ascertained at the moment, but it is to be hoped that an opportunity will be found for timing the machine over the 3 km. course laid out at Bay Shore, so that the actual speed of the Gloster-Napier III may be definitely established. That it will equal the speed of the winner of the Schneider Cup is, perhaps, too much to hope, but that 200 m.p.h. represents its top speed we refuse to believe, and we await further information with very considerable interest.

### British Challengers' Run of Bad Luck

In the absence of detailed information on various points relating to the Schneider Trophy Race itself, it is not proposed to attempt to give a full description of the race in this week's issue of FLIGHT, this being deferred until next week, but in the meantime a few notes relating to the happenings of the last few days before the race may be of interest. Britain's share in the history of the 1925 Schneider Race is a sad story of misfortune after misfortune. As previously recorded in FLIGHT, the trouble commenced already on board the Atlantic Transport Company's *Minnewaska*, when Capt. Biard slipped on the deck and injured his wrist, the injury being very painful and a good deal more serious than was admitted at first.

Then came the hurricane, which nearly wrecked the British machines in their very makeshift tent hangars, and which did damage the Supermarine-Napier S.4 through a tent-pole falling on to its tail and breaking certain structural members. For a time the greatest concern was felt in this country, but, fortunately, the damage could be, and was, repaired in time, and the machine was able to commence its test flights.

On the day of the eliminating trials, Friday, October 23, another misfortune overtook the British team, this time a most serious one. Captain Biard, who had been suffering from a chill, declared himself sufficiently well to be able to put the Supermarine-Napier S.4 through the navigability and mooring tests, and at about 10 a.m. his machine left the water for the first part of the trials. According to eye-witnesses the Supermarine-Napier S.4 left the water in a remarkably clean manner, and Biard made a circuit over the sheds and then flew out to the judges' cutter, coming back over the pier head. At a height of about 800 ft. he was seen to make a steeply banked turn, which at first led the spectators to believe he was stunting, but it was soon realised that his machine was in difficulty and not under proper control. Some experts expressed the opinion that the wings had commenced to "flutter," a phenomenon not unknown in cantilever monoplanes, but whatever the reason, Biard was obviously in trouble. By a fine piece of piloting he managed to flatten out just before reaching the water, but the machine struck somewhat forcibly and the floats gave way and the machine sank. Captain Biard managed to extricate himself, and now the position of the pilot's cockpit proved useful in that there was no obstruction in the way. Captain Broad, who had alighted with his Gloster-Napier III after completing the first part of his tests just before Capt. Biard started, saw the accident and at once taxied at high speed up to Biard and threw him a life belt, which kept Biard afloat until rescue arrived. Fortunately, it was found that with the exception of a few bruises and the effects of the shock Captain Biard was not seriously injured, but the machine was a total wreck.

Captain Broad passed the navigability and mooring tests without trouble, as did also the three American defenders and the two Italian challengers. When the Supermarine-Napier S.4 crashed, the second Gloster-Napier III, to be piloted by Mr. Bert Hinkler, should have been ready to take its place immediately and to go through the navigability and mooring tests, but for some reason, not known at present, the machine does not appear to have been ready, and it was not until late in the afternoon of Friday, October 23, that Hinkler could bring the machine out. The breaking of a bracing wire forced him to return, and by the time the damage had been repaired it was too dark to continue, so that a second attempt could not be made that day.

On Saturday, October 24, the day set aside for the Schneider Cup Race, a strong wind was blowing, and it was found that conditions were quite impossible. It was consequently decided to postpone the race until Monday, October 26.

All day Sunday, October 25, Bert Hinkler had awaited an opportunity to complete the preliminary trials which he commenced on Saturday, and as a result of a petition on the part of the American and Italian competitors, the referee gave the ruling that Hinkler, provided he could complete the prescribed navigability and mooring tests, should be permitted to take part in the race on October 26. The weather, however, was far too boisterous, a gale of 65 m.p.h. blowing across Chesapeake Bay, and there was no opportunity of carrying out the tests. By Monday morning, October 26, the weather had calmed somewhat, and the sea near the shore appeared to be considerably smoother than it had been on the previous day. Hinkler brought out the spare Gloster-Napier III and managed to take off quite successfully. On descending for his first taxying test out in the Bay where the water was still very rough the machine, although the actual landing was safely accomplished, soon got into trouble, the undercarriage struts giving way and the fuselage settling on the water. The sharp propeller, which was still revolving, damaged the noses of the floats, and the machine had to be towed back to the sheds. The seas proved much too rough for the racing machine, and afterwards it was generally agreed that no seaplane could have long survived the pounding which Hinkler's Gloster-Napier received. Just as we are about to go to press information is received in a cable from Baltimore which indicates that the low speed of the Gloster-Napier III was due to an unsuitable propeller, while Broad is stated to have taken his turns very wide.

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### "Sir Charles Wakefield" Scholarship and "Hyde-Thomson" Memorial Prize.

THE Air Ministry announces:—Aircraft Apprentices C. McK. Grierson, A. C. Bentley, C. C. O'Grady, and W. M. Moore, from the School of Technical Training, Halton, and Aircraft Apprentice L. P. Moore, from the Electrical and Wireless School, Flowerdown, have been selected for cadetships at the R.A.F. Cadet College, Cranwell, on the results of the examinations held on completion of their three years' training as aircraft apprentices.

"Sir Charles Wakefield" Scholarships, valued at £75 each, have been awarded to Flight Cadets C. McK. Grierson and A. C. Bentley, and the "Hyde-Thomson" Memorial Prize, valued at about £33, to Flight Cadet L. P. Moore. In addition the "Sir Charles Wakefield" Scholarship, which was not awarded in June, 1924, since no eligible candidate qualified for entry, has now been awarded to Flight Cadet H. F. M. Pickford.

# THE NEW YORK AIR MEET

## Details of the Pulitzer Race

SOME particulars of the Pulitzer Race, held during the New York Air Meet at Mitchell Field, Long Island, have now come to hand from a friend who is at present with the British Schneider Cup team in America. Writing from Baltimore, our correspondent says that on October 10, when the Pulitzer Race should have been held, a veritable hurricane was blowing. In the morning a wind of 40 m.p.h. at ground level, and 65 m.p.h. at 500 ft., was blowing, and the wind was gradually getting up. Several members of the British Schneider Cup team had decided to go from Baltimore to New York to witness the race for the Pulitzer trophy, and, although information had been received before the party left Baltimore that the race would be postponed, it was decided to make the trip.

The British visitors reached Mitchell Field about 11 a.m., and it was found that very strict arrangements had been made to make certain that no unauthorised person could get near the machines. The United States Army—complete with fixed bayonets—was obdurate, and for a time it looked as if the British visitors had made a fruitless journey. Ultimately, however, Maj. Brooks came to the rescue of the party, and from then onwards everything appears to have been plain sailing. Among the machines to be seen at Mitchell Field our correspondent appears to have been particularly impressed by the Remington-Burnelli, which, apparently, is now employed as a sort of flying motor-car show-room. Inside this machine, our correspondent states, was an Essex limousine, which, it was claimed, had actually been built in the machine, the inside of which resembled a small motor showroom. It was gathered that the Remington Burnelli is making a tour of the different towns, and is probably the only flying motor show-room in existence.

On view at Mitchell Field was also a new type of air-cooled engine, the new five-cylinder Rickenbacker radial, which, according to its designer, the famous American Ace, is going to revolutionise cheap flying.

Naturally, the most interesting "exhibits," from the point of view of the British visitors, were the two Curtiss Racers, and, with the kind assistance of Maj. Brooks, the party was given every opportunity of making a thorough inspection. Concerning the racers, our correspondent states: "They are certainly very impressive machines, beautifully streamlined, and racers every inch of them. They are, of course, fitted with wing radiators, and the engines are the latest type high-compression Curtiss V.1400. It was gathered that the normal revolutions of these engines are 2,400 r.p.m., and that they develop 619 b.h.p. The weight is stated to be 700 lbs., so that the weight works out at 1·13 lb./h.p. The engines are fitted with Reed propellers made in the Curtiss factories." After a thorough inspection of the racers, Maj. Brooks very kindly placed a staff car at the disposal of the British visitors to take them back to New York. The hurricane had been raging all day, and, naturally, those of the British team who were in New York were somewhat anxious concerning the British "hopes" at Bay Shore Park. During the evening, efforts were made to get into touch with those left behind in charge of the machines at Bay Shore Park, but it was not until the next morning that communication was established. It was then learned that the Supermarine-Napier S.4 had been damaged by a falling tent-pole, as already mentioned in FLIGHT, but that the damage could be repaired in time for the Schneider Cup Race.

Concerning the tents in which the Schneider Cup racers were housed, our correspondent states that these were of the ordinary war-time type of canvas hangars, and that the heavy rain came through as if the tents had been sieves. Working on the machines in such conditions was extremely unpleasant, and our correspondent considers that very much better accommodation should have been provided. By this it is not meant to infer that the British challengers were any worse off than the other Schneider Cup machines; in fact, everybody seems to have been "in the same boat."

On Monday, October 12, the weather had improved, the wind having practically dropped, although visibility was none too good. The British visitors arrived at Mitchell Field about 12.30, and on their way down called at Curtiss Field, where a great deal of aerial activity was observed.

Soon after their arrival at Mitchell Field the British visitors were met by Mr. C. R. Fairey, who invited the party to partake of sandwiches, etc.—an invitation which was gratefully accepted, particularly the etc. Conversation naturally turned on the performances likely to be put up by the Curtiss racers in the Pulitzer Race. Mr. Fairey maintained that they would probably reach anything from 255 to 260 m.p.h. Mr. H. P. Folland doubted this, and a bet was arranged on the 250 m.p.h. basis. After the race Mr. Folland had the pleasure of relieving Mr. Fairey of a fair amount of American currency.

As regards the actual race meeting at Mitchell Field, on October 12, the first race was for light 'planes. Six machines started in the race, and of these two failed to complete the first lap, the remaining four finishing the race, which was one of ten laps of a five-mile course for the "Scientific American" trophy for efficiency, and the "Aero Digest" trophy for speed. The best time was made, as already recorded in a previous issue of FLIGHT, by the Powell racer, piloted by Joseph A. Faucher, whose average speed was 76·1 m.p.h. The Powell light 'plane was fitted with a Bristol "Cherub" engine.

The second race of the day was for the John L. Mitchell trophy, and was for Curtiss P.W.8 "Pursuit" 'planes, all fitted with Curtiss D.12 engines. Ten machines started in this race, all the pilots belonging to the first Pursuit group. The machines are America's latest type of pursuit aeroplanes, and have been developed from the Curtiss high-speed racing machines. The race was over a distance of 120 miles, and consisted of ten laps of a twelve-mile course. The race proved particularly interesting, and some very fine cornering was seen. Nine of the ten machines which started completed the course, one machine dropping out in the fourth lap. The race was won by Lieut. T. K. Mathews, at an average speed of 161·5 m.p.h.

Between the race for the Mitchell trophy and the Pulitzer, "Jimmy" Doolittle did some excellent stunt flying on a Curtiss P.1. One thrilling stunt was Doolittle's big dive from about 5,000 ft. with full engine.

While Doolittle was giving his exhibition of stunting, the engines of the Pulitzer machines were being warmed up. In view of the regrettable accident to Bert Skeele in last year's Pulitzer, the regulations for this year's race stipulated that the machines must not reach a height of more than 1,200 ft. at any time prior to the start, and must maintain horizontal flight at a height of not more than 400 ft. over a distance of 1 kilometre, before crossing the starting line, the object of this stipulation being to discourage diving. The pilots of the Pulitzer machines all wore parachutes, it being their intention that should they experience engine trouble while flying over bad country they would zoom and leave the machines to take care of themselves, the pilots saving their lives by descending in the parachutes.

The first man to start was Lieut. A. J. Williams, on a Curtiss Navy Racer, with a Curtiss V.1400 engine. He was followed thirty secs. later by Lieut. Cyrus Bettis, who was piloting a Curtiss Army Racer, also fitted with Curtiss V.1400 engine.

The Pulitzer race was one of four laps of a 50 km. circuit, and the fastest time was made by Lieut. Cyrus Bettis, whose average speed was 248·99 m.p.h. It is of interest to note that the lap speeds of the winning machine were as follows:—1st lap 247·8 m.p.h.; 2nd lap, 249·4 m.p.h.; 3rd lap, 248·7 m.p.h.; 4th lap, 249·97 m.p.h. The second fastest speed was made by the Curtiss Navy Racer, piloted by Lieut. Williams, whose average speed was 241·71 m.p.h. Williams' speeds in the four laps were: 243·7, 242·1, 241·4 and 243·66 m.p.h.

Concerning the relatively low speeds in the Pulitzer, low, that is compared with what had been expected, various explanations have been put forward. One suggestion is that the American pilots were deliberately holding back their machines so as to avoid giving a true indication to the foreign Schneider Cup teams of the real capabilities of their mounts. An American source, which is considered very reliable, states that of the 12 Curtiss V.1400 engines built for the Pulitzer and Schneider Cup races, the first is believed to be a freak because of its marvellous efficiency. When the other motors were tried out, this American source states, they developed defects, and their horse-power was much less than that of the first engine. This first engine was, it was stated, fitted in the practice machine on which Lieut. Williams is claimed to have made 302 m.p.h. before the race. The engines fitted in Bettis' and Williams' machines had been improved before the race, but still were not thought to have come up to the first engine of the batch, and it is now believed that it is this particularly good specimen which was later transferred to Doolittle's Curtiss Army Racer that won the Schneider Cup. If so, this would appear to account for the very great speeds.

FLIGHT

# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## COMMITTEE MEETING

A MEETING of the Committee was held on Wednesday, October 21, 1925, when there were present :—The Duke of Sutherland, in the chair, Ernest C. Bucknall, Air Vice-Marshal Sir W. S. Brancker, K.C.B., Lord Edward A. Grosvenor, Lieut.-Col. F. K. McClean, A.F.C., F. Handley Page, C.B.E., Major S. V. Sippe, D.S.O., T. O. M. Sopwith, C.B.E., and the Assistant Secretary.

**Election of Members.**—The following new Members were elected :—

Flying Officer Francis Philip Adams.
Theodore Stanhope Sprigg.
Henry Wynmalen.
Henry Stuart Tegner.
Pilot Officer James Edward Welman.
Eric Leslie Donald.
Gordon Alchin.
Francis Robert Fennick Luke.
Leslie George Pollard.
Dudley Alastair Nixon Watt.
Pilot Officer Allan John Stubbings.
Flying Officer Angus Ross Buchanan.
Henry Rudolf Trost.
Flying Officer John Messer-Bennetts.
Flight-Lieut. Noel Lloyd Desoer.
John Carlisle Pomeroy Magwood.
Capt. Stanley Gordon Young.

**Sub-Committees.**—The Committee dealt with the reports from the following Sub-Committees :—

Racing Committee, Schneider Cup Committee, Technical Committee, House Committee, Finance Committee.

**Aviators' Certificates.**—The following were granted :—

7971. Nils Erik Gustav Bruncrona .. July 22, 1925.
*7972. Pilot Officer Henry Baillie-Barrett July 6, 1925.
7973. Froude Ridler Matthews.. .. August 19, 1925.
7974. Guy Nevile Warwick .. .. October 16, 1925.

* Granted on Royal Air Force Graduation Certificate.

**World's Record.**—Letter was read from the Fédération Aéronautique Internationale, dated October 5, 1925, confirming the following world's record :—

*Class C*A (*Seaplanes*)

| | | |
|---|---|---|
| Type | .. .. | Supermarine-Napier S.4. |
| Constructor | .. | Supermarine Aviation Works, Ltd. |
| Engine | .. | 450 h.p. Napier "Lion." |
| Pilot | .. .. | Capt. H. C. Biard. |
| Place | .. .. | Southampton Water. |
| Date | .. .. | September 13, 1925. |

*Record.*—Greatest speed over a straight line course : 364·924 km. (= 226·752 miles) per hour.

**F.A.I. Conference, Prague.**—It was reported that the proposal of the Royal Aero Club to impose a limit of landing speed in high speed races had not been agreed to.

**Government Aircraft Demonstrations.**—The Club had represented to the Air Ministry that it should receive a limited number of invitations to be present at demonstrations of aircraft except those of a strictly private nature. Letter was read from the Air Ministry, dated August 20, 1925, agreeing to this.

**London Aeroplane Club.**—The report of the working of the London Aeroplane Club from August 19, 1925 (opening date) to date was submitted. Over 200 hours' flying instruction had been given to its members and there had been one small mishap caused by a bad landing, costing approximately £40.

Offices : THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W.1.
H. E. PERRIN, **Secretary**

# LONDON AEROPLANE CLUB

OWING to the unfavourable weather during the past week flying has only been possible in short periods on three days. The following members were under instruction :—S. O. Bradshaw, G. H. Craig, R. V. Banks, Major Beaumont, H. R. Thomas, Mrs. Elliott-Lynn (solo), A. R. Ogston, L. E. Vincent, C. E. Murrell, G. N. Warwick (solo), N. J. Hulbert (solo), D. P. H. Esler, N. Jones, T. W. Heath, C. E. Pitman, Commandant M. S. Allen, Miss H. B. Tagart, J. Barros, G. S. Brough, G. W. Quirk, R. P. Cooper.

On Sunday, October 18, 1925, Mrs. Elliott-Lynn flew solo for the first time and made some excellent landings.

On Saturday, October 24, 1925, the Director of Civil Aviation, Air Vice-Marshal Sir Sefton Brancker, visited the Club at Stag Lane Aerodrome and discussed with the Officials and the Pilot Instructors the question of upkeep and running expenses. During his stay of nearly two hours, Sir Sefton Brancker saw several members taken up for flying instruction.

The total flying time for the week was 13 hours.

**Prague - Croydon - Prague : Lieut. Jira, of Czecho-slovakia, who recently flew from Prague to Croydon and back on an Avia B.H. 9 low wing monoplane, 60 h.p. Walter engine. Although he did not succeed, owing to bad weather, in making non-stop flights as intended, he nevertheless put up a remarkable performance, covering the 2,525 km. (1,565 miles) at an average speed of 140 k.p.h. (86·9 m.p.h.)**

# SIR SAMUEL HOARE'S CAMPAIGN

ON October 16, at the Guildhall, Lincoln, Sir Samuel Hoare gave the first of the series of speeches he is to make during his tour of the provinces in connection with the Air Defence scheme. After thanking the citizens of Lincoln for giving him the opportunity of discussing the matter with them, he alluded to the fact that the older Services relied in the past for their recruits on families and classes that, generation after generation, had provided officers and men for the fighting forces. But, he said, in a world of high taxation and continuous changes this was becoming more and more difficult. Thus, he looked to the great industrial centres, such as Lincoln, to help in the difficult task of strengthening our air defences.

They might ask, said Sir Samuel, why in a period of peace—when the Locarno Conference gave promise of a peace more profound than any that they had enjoyed for more than a generation—did a Minister come to them and raise the question of air defence? There was nothing the country wished to think less about than the question of a possible war, but he, none the less, said that in the very interests of peace and economy they must maintain their defences at an adequate level, or they would otherwise run the risk of panic measures and panic expenditure, and be in the situation, impossible for the British Empire, of living upon the sufferance of foreign Powers.

It was good, therefore, for all British citizens to review from time to time the state of their national defences and satisfy themselves that they were reasonably secure against risks—though remotely improbable—so great. As a result of such a review one fact emerged prominently—that with the development of science we were no longer an island, isolated by the sea from the rest of the world. An aeroplane, military or civil, could fly equally over sea and land, and, however strong our Navy and our Army, could penetrate into the heart of the country. This meant that if a European war ever broke out again our battles might no longer be fought upon foreign territory, nor our casualties be restricted to the regular forces. It was much more probable that the critical battles of the future would be fought over our great cities and the chief sufferers would be the civilians—men, women, and children of our great towns.

They probably already knew the main lines of our defence proposals: a certain number of highly trained regular squadrons capable of adopting the only sound method of air defence and taking the war into the enemy's camp, a ground organisation carefully organised for warnings and such protection as anti-aircraft guns could give. But over and above these aspects of it there was a third that he was there to discuss. He had come to invite the citizens of Lincoln, and it was an invitation that he would make to other great cities, to take their part as civilians in a task that was incumbent upon every British citizen. Hitherto there had never been connected with the Air Force any non-regular or Territorial element, and he was convinced that, not only on the grounds of economy but also on the grounds of national security, it was essential that they should introduce into the Air Defence scheme a substantial element of non-regular and semi-regular personnel. They were thus starting two kinds of defence squadrons, Auxiliary and Special Reserve. As Lincoln was concerned only with the Special Reserve squadron it was proposed to start during the next few months, he would deal with that side of the scheme.

A Special Reserve squadron would consist of a strong nucleus of regular officers and mechanics, but the bulk of its personnel would be civilian special reservists drawn from engineering and similar undertakings in the vicinity. Its peace time headquarters would be an aerodrome situated as near as possible to the centre from which its personnel would be drawn—in the case of Lincoln, at Waddington—and it would have a war station to which it would move in the event of hostilities. Squadrons would be either day bombers or night bombers, and it was proposed to make the Lincoln squadron of the latter class, which meant that it would be equipped with twin-engined machines, and organised in two flights of five machines each. The total personnel of this squadron would be 28 officers and 214 airmen, of which 14 officers and 113 airmen would be non-regular special reserve personnel. At first the squadron would have principally training machines, but gradually it would be given its full establishment of service types of aircraft like a regular squadron.

Sir Samuel then gave a brief outline of the term of service proposed for the Special Reserve personnel. Firstly, officers should be between 18 and 25 years of age and would, of course, in their own interest, have to reach a certain standard of physical fitness. They would be asked to undertake, in the first instance, a term of service of five years; for any shorter period an expensive flying training would not, of course, be justified. As regards this training, the best way for an officer to learn to become an efficient pilot would be for him to spend six months continuously at a regular Air Force station or squadron. It was realised, however, that in some cases this might be inconvenient and as an alternative an endeavour would be made to arrange for intermittent instruction to be given somewhere in the neighbourhood of the officer's home, so that there might be little or no interference with his ordinary way of life. For example, an officer from Lincoln, whenever he had a day or an afternoon free, would be given instruction at Digby. Once an officer had completed his initial training he would be required to carry out periodical flying practice up to a minimum of 12 hours annually, but otherwise the demands made upon his time would be very small.

In the case of airmen, too, they were anxious to make conditions as elastic as possible so that there might be a minimum of interference with a man's everyday life whether in his working or leisure hours. The age limits would be from 18 to 38 and they contemplated a period of service of from one to four years in the first instance, so that a man need not feel that, if he became a Special Reservist, he was tied for a long period from the very start. Only qualified men would be enlisted for the skilled trades, the principal of which being fitters (with experience of internal-combustion engines), carpenters, electricians, wireless operators, and mechanical transport drivers; in this way it was hoped to avoid the necessity for any long period of specialised initial training, though in a few cases a special initial course of six months might be necessary. In the ordinary way, however, it should be possible for a skilled tradesman to carry out all his training in his own time, and there should be no need for him to attend at the aerodrome for more than a day, or even half-a-day, unless he wished to do so. A Special Reserve airman would be provided with uniform and working clothing, and when called up for duty as an airman (including periods of initial training where necessary) he would receive the same pay, allowances and rations as a regular airman. When his Commanding Officer was satisfied that he was proficient, he would receive an annual retaining fee of £3 per annum. Special Reserve airmen would not be liable for overseas service without a special Act of Parliament; the Force that Lincoln was being asked to assist in building up was essentially for purposes of *Home Defence*.

This, briefly, said Sir Samuel, was a short description of the squadron it was proposed to start at Lincoln. He would draw attention to two features in particular connected with it. In the first place, a squadron of this kind was obviously much cheaper than a fully manned regular squadron. This was an important fact at a moment when we were all struggling to keep down expenditure and to lessen taxation. The initial cost of a special reserve squadron was over £150,000 less than that of a regular squadron of the same type, and it cost about £45,000 per annum less to maintain. Secondly, it would be noted that more than half the personnel was drawn from civilian life and that the repair work of the squadron was to be carried out by contract with civil firms. He attached the greatest importance to this side of the scheme. For the first time in our history civilian officers and men would have a chance of taking their part in air defence. For the first time in our peace time history a military unit would be formed that would make the fullest possible use of the civilian facilities in the neighbourhood for repair work and non-military duties. He was sanguine enough to think that the experiment would succeed and that if it did the practice of availing ourselves of civilian help would greatly increase.

He realised the objections that might be made against the proposal. The objection, for instance, that a unit should be fully manned by regular personnel and fully self-contained. None the less, he believed that the advantages would greatly outweigh the disadvantages. From the point of view of economy the experiment would help to reduce expenditure. But most of all from the point of view of the progress of British flying, he believed that we would obtain the great advantage of diffusing the knowledge of flying and the principles of air defence amongst a much wider section of the population than we would reach if we restricted our efforts to the regular officers and men of the R.A.F. Gradually a knowledge of air would be built up in our great industrial centres, gradually a reserve

of pilots would be created, gradually skilled artisans and mechanics would come to understand the intricacies of aviation. Gradually as civil flying developed a generation would grow up that would not only be able to take its part in the air defence of the country but would be able to find careers as the Empire civil air lines developed. Surely this was one of the means that we should adopt for broad basing our air defence upon the widest possible national effort. Surely this was one of the ways that we should adopt for increasing the air knowledge of the people and for enabling future generations of British citizens to feel themselves as much at home in the air as they had been upon the sea or upon the land. If this was so, it was an effort that he could confidently commend to the support of the citizens of the country. It was an effort that today, in particular, he commended to the attention of the citizens of Lincoln and he asked their help in supporting the squadron, in enabling officers and men to join it and in keeping it the kind of squadron that a great city like Lincoln would wish to have connected with it, namely, one of the most popular and efficient squadrons in the whole of our Defence scheme.

On October 20, Sir Samuel Hoare went to Norwich, paying a visit in the morning to the works of Messrs. Boulton & Paul, Ltd., and in the evening presiding at a meeting at the Assembly Rooms on the occasion of a lecture given by Mr. Alan Cobham. In his address, Sir Samuel said he was there not only to do honour to a fine civilian pilot but also to make it clear that although he was doing everything in his power to strengthen and improve our air defences, he was fully alive to the importance of civil flying. Sir Samuel then spoke on the importance of developing civil aviation, not so much in Great Britain as in the British Empire. He referred to the part played by Norwich on behalf of aviation, in connection with metal construction, and briefly outlined the efforts the Government were making to develop commercial flying, and finally, in wishing Mr. Cobham success, referred to him as one of that gallant company :—

> " Who are the merchants of morrow whose caravels marry
> Lima with London, and Boston with Omsk or Bombay.
> Carrying cargoes or men as the cables that carry
> Thought on a flutter of sound in a flutter of day ;
> They are the sellers of speed and the strong-souled buyers
> Of time that the millions mourn and a world desires—
> The gem men lust for, the thief that ruins and plunders,
> The beast they hunt through the heavens and find and slay."

Sir Samuel Hoare's next speech was made on October 23 at the Westminster City Hall, London, where he described in detail to the Territorial Army and Air Force Association of the County of London, the conditions of service that have been decided on for the Auxiliary Air Force Squadrons. He stated that at the moment only Auxiliary Air Force Squadrons were being formed in London, and said that they were very fortunate in that Lord Edward Grosvenor was going to command the squadron which the County Association was forming. This squadron would be a day bombing unit, and would ultimately be organised in three flights of four machines each, giving a total strength of 12 first-line aircraft. At the start the squadron would have a large proportion of training machines, the first three of which should become available in the next two or three days. The total establishment was 28 officers and 177 airmen, of which 26 officers and 152 airmen would be organised on an auxiliary basis. The squadron would be based on Northolt Aerodrome until such time as the negotiations for the acquisition of Hendon Aerodrome were completed.

Among those present on this occasion were :—Major-General Lord Ruthven, G.O.C., London District ; Major-General Sir William Thwaites, Major-General Sir Geoffrey Feilding, Air Vice-Marshal Sir Ivo Vesey, Air Commodore C. L. N. Newall, and Mr. H. Mansbridge, the Secretary of the Association. Recruiting for these London squadrons will start on November 2.

On October 26, Sir Samuel addressed a meeting in Glasgow City Chambers, under the auspices of the Glasgow Territorial Army and Air Force Association, when he explained the objects of the new R.A.F. Auxiliary Squadrons.

He made a special appeal to University men, saying that in the course of the next few years we had to build up a system of air defence, and it was no easy problem to treble the strength of one of the three great fighting Services. The University had, he said, been very active, and had accomplished much valuable work in the field of aeronautics, and he was therefore most anxious to link up their experiment from the very beginning with the excellent scientific work in which the University was particularly engaged.

Sir Samuel next spoke at Edinburgh, on October 27, when he again outlined in detail the scheme for the formation of the Territorial Air Force Squadrons for Home Defence. Apart from special references to Edinburgh, most of Sir Samuel's remarks dealt with the same questions and information as previously given on the occasion of his visit to the other two towns already referred to.

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# INSTITUTE OF AERONAUTICAL ENGINEERS

WE give below a list of fixtures of the Institute for the coming season. It should be noted that all the Institution Meetings this season will be held in the Lecture Room of the Junior Institution of Engineers, 39, Victoria Street, S.W.1, instead of the Engineers' Club as previously.

*Fixtures*, 1925–26.

1925.

Oct. 27.—Report on International Aircraft Navigation Congress at Brussels, by Dr. A. P. Thurston, D.Sc., M.B.E.

Nov. 10.—Paper, " Practical Flying," by Mr. M. L. Bramson, A.C.G.I. (Member).

Nov. 28.—Visit to the Shipping, Engineering and Machinery Exhibition, Olympia, with a Paper, " Training Aircraft," by Mr. R. J. Parrott, A.C.G.I. (Hon. Member).

Dec. 15.—Paper, " The Advantages of Metal Construction," by M. E. Dewoitine.

1926.

Jan. 12.—Paper, " Some Aspects of Full-Scale Experiments," by Mr. C. Howarth (Member).

Jan. 26.—Paper, " The Care and Maintenance of Tools as an Important Factor in Workshop Routine," by Lieut. Olechnovitch (Member).

Feb. 9.—Informal Meeting.

Feb. 23.—Paper, " The Development of Civil Marine Aircraft," by Mr. O. E. Simmonds, M.A., A.F.R.Ae.S. (Member).

March 9.—Informal and Annual Meetings.

April 13.—Paper, " The Performance of Modern Aircraft—with special Reference to the Variable Wing," by Mr. S. H. Evans, B.Sc.(Eng.), A.F.R.Ae.S. (Associate Member).

April 21.—Visit to the Works of Messrs. D. Napier & Son, Ltd., Acton, W.3.

May 11.—Paper, " The Modern Theory of Aerofoils and its Application to Aeroplane Design."

May 19.—Visit to the National Physical Laboratory, Teddington.

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### Japanese Airmen in Rome

MAJOR ABE and Mr. Kawachi left Brussels on October 26 in their Breguet biplane and arrived in Lyons that afternoon. The following day they proceeded to Rome, thus completing their splendid flight from Tokyo. Arrangements have been made in Rome for elaborate functions in their honour.

### Italian Trans-Atlantic Flight.

ON October 26, Signor Mussolini visited the Sesto Calende aerodrome, and baptised, with a bottle of champagne, the large machine on which the Italian pilot Commander Casagrande, with three other airmen, will attempt to fly from Rome to Buenos Aires. This machine is, we understand, a Savoia type S.55 mono-seaplane, a description of which appeared in FLIGHT for April 9 last. It is a cantilever monoplane with two underslung boats, and is fitted with two engines in tandem above the wings. The route to be taken on this flight will be via Gibraltar, Cape Verde Islands, Pernambuco, and Rio de Janeiro, a total distance of about 7,000 miles. A start will probably be made this week.

### Tokyo-Rome Flight

THE Marquis de Pinedo is continuing his return flight from Tokyo to Rome on the Savoia S.16 ter flying-boat, and during the week-end he proceeded from Hongkong to Saigon (Indo-China), Bangkok, and Rangoon—arriving at the latter place on October 27.

# 112 M.P.H. LUNCHEON


IMPERIAL AIRWAYS' NEW AIR LINER: On Tuesday, October 27, the Vickers "Vanguard," fitted with two Rolls-Royce "Condor" engines of 650 h.p. each, took up a party at the Croydon Aerodrome, when a complete luncheon was served on board. Very bumpy weather somewhat interfered with the enjoyment of the lunch. The machine was piloted by Major H. G. Brackley, Air Superintendent of Imperial Airways, and the Director of Civil Aviation, Air Vice-Marshal Sir Sefton Brancker, acted as "spare pilot." The machine has seating accommodation for twenty passengers, and has a top speed of 112 m.p.h. Our photograph shows (1), front view of the machine; (2), a group of distinguished passengers, including, from left to right, Capt. Acland, Major Mayo, Air Vice-Marshal Sir Sefton Brancker, Major Brackley, and Squadron-Leader Payn. (3), View of the machine in flight, and (4), Side view.

FLIGHT

# THE CIERVA "AUTOGIRO"

## Noteworthy Lecture at the Royal Aeronautical Society

IF the attendance at the Royal Aeronautical Society is any criterion, British aviation circles can be assumed to be keenly interested in the new method of flight invented by the Spanish engineer, Senor de la Cierva, as represented by his "Autogiro," which was demonstrated at Farnborough last week. It is safe to say that of recent years no lecturer at the Royal Aeronautical Society has drawn an attendance approaching that of Thursday of last week, October 22. The lecture room was filled by 5.30, and still people continued to arrive, the late comers having to be satisfied with standing around the room, whilst a large number were obliged to remain in the ante-room. The Director of Civil Aviation, Air Vice-Marshal Sir Sefton Brancker, was in the Chair.

In introducing Senor de la Cierva, Sir Sefton said that he thought undoubtedly the future would regard October 22nd as a very significant date in the history of the Royal Aeronautical Society, and he would go as far as to say that Senor de la Cierva's invention would be found to represent the greatest step forward in aeronautical development since the Wright brothers piloted their first power-driven machine. Before asking Senor de la Cierva to give his paper, he would ask Major Wimperis to say a few words concerning the lecturer, but before doing so he thought it only fair to state something about the lecturer which probably even Major Wimperis did not know, and that was that Senor de la Cierva had been a member of the Spanish Parliament, and that, therefore, in criticising the invention, they would have to be prepared for acrimonious replies.

Major H. E. Wimperis said that Senor de la Cierva had been interested in the design of aircraft for a considerable number of years, and that he had built no less than thirty successive models. The machine which had been obtained for tests at the Royal Aircraft Establishment was the property of the Spanish Government, to whom they were greatly indebted for the loan of the machine and for the opportunity to make exhaustive tests. As regards the future of the "Autogiro," all that could be said at present was that this would depend upon the load carried per horse-power, and data of that kind.

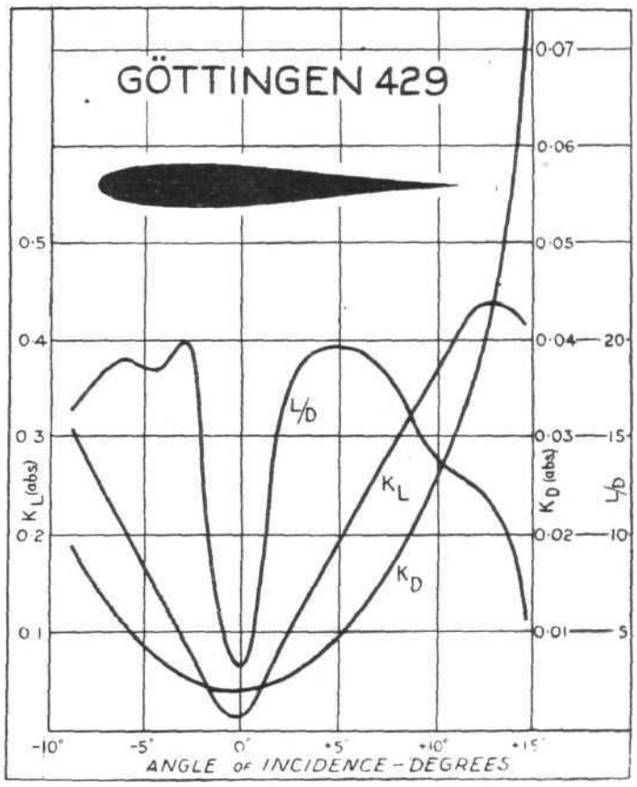
Senor de la Cierva, speaking in French, said he regretted he was not sufficiently familiar with the language to be able to speak in English. He expressed his very great indebtedness to the British technicians for the assistance they had given him, and he was also extremely grateful to "Le Grand Pilote," Capt. Courtney, whose extraordinary skill had resulted in the very good demonstrations which had been given. Senor de la Cierva was received with vigorous applause.

Sir Sefton Brancker agreed to read Senor de la Cierva's paper, as the lecturer did not feel sufficiently at home in the English language to read the paper himself. Senor de la Cierva began his experiments in 1911, at the age of 15, commencing with gliders. Needless to say, he had a number of crashes, and all, or nearly all, could be attributed to a loss of flying speed. In 1918 he built a large three-engined machine, which was wrecked through loss of flying speed. His many mishaps due to that particular cause resulted in Senor de la Cierva looking for other means of obtaining lift than the normal aeroplane wing, and the actual idea of fitting a windmill in place of ordinary wings occurred to him in 1919. The original machine, however, had wings which obtained their propulsion from beating or flapping.

A number of lantern slides were then shown, illustrating the windmill as applied to the evolution of the present Cierva "Autogiro." The first machine built was provided with two four-bladed windmills mounted one above the other, but revolving in opposite directions. The windmills were not driven by the engine, but were rotated by the forward speed of the machine. The four blades of each propeller were rigidly braced, the idea of hinging the four blades not occurring to de la Cierva until later. It was found that although the top windmill came very close to the predicted performance as regards speed and lift, the lower windmill only attained something like two-thirds of the predicted performance, so that it was evident that there was considerable interference between the two windmills. This fact led Senor de la Cierva to concentrate in the future upon the development of the single windmill, and in machine No. 2 but a single lifting screw was employed. This was a three-bladed affair, and it was found that, although the machine would lift, it always tilted over to the right and side-slipped.

In machine No. 3, five rigid blades were employed in the windmill, and the elevator was divided in the centre, the idea being to use the two elevator flaps independently to counteract torque. The fuselage was suitably strengthened up to take the twisting stresses arising from this type of elevator. It was found, however, that although the divided elevator did effect an improvement, the machine still had a tendency to roll to the right and side-slip.

The idea of hinging the blades of the windmill, relying upon centrifugal force to oppose the lift on the blades, first occurred to Senor de la Cierva early in 1922. Machine No. 4, therefore, incorporated this idea. It had a four-bladed windmill with the blades hinged, the hinges being placed at an angle of 2° to the axis of the windmill. Control was still found difficult, and it was found that the method adopted for tilting the windmill axis to counteract torque required greater force than could be exerted by the pilot. Machine No. 5 had a three-bladed windmill, but the blades were rotated in the opposite direction—that is to say, anti-clockwise as viewed from above. This arrangement had the effect of stopping the tendency of the machine to lean over to the right, and, moreover, the action was entirely automatic.




By now Senor de la Cierva had succeeded in convincing the Spanish authorities of the practicability of his invention, and machine No. 6 was, consequently, built at the expense of the Spanish Government. This machine was similar in all but very minor details to the one flown by Courtney at Farnborough last week. The wing section employed in the windmill blades was stated to be Göttingen No. 429.

[For the benefit of our readers we give a graph showing the characteristics of this wing section. The section and the data from which the curves were plotted were obtained from Vol. I of the "Ergebnisse der Aerodynamischen Versuchsanstalt zu Göttingen." No dimensions of the section are given in this work, the usual practice of Göttingen being to print on photographic paper through the templates used in making the wind tunnel models, thus obtaining a silhouette of the particular section whose template was used. This method, while giving a good picture of a section, obviously does not give the dimensions, but it will be seen that the section is a bi-convex one, probably intended to be symmetrical. From the lift coefficients obtained at negative

and positive angles it would, however, appear as if the section was not entirely symmetrical, since there is a slight difference in the curves at negative and positive angles.

In the original work the lift and drag coefficients are, of course, given in German units, *i.e.*, they are the absolute units employed in this country multiplied by 200. In the accompanying graph these have been converted to the usual "absolute" coefficients. Although not shown on the curves Senor de la Cierva was probably led to his choice of wing section by the very small travel of the centre of pressure of Göttingen No. 429. It will be seen that the maximum L/D is fairly high, *i.e.*, nearly 20 at 5° incidence. The maximum lift coefficient is low, but owing to the fact that the windmill rotates at fairly high speed, presumably a low value of $k_L$ is not as great a drawback as it would be in a normal machine.—ED.]

A series of cinematograph films were then shown illustrating the flights of some of the earlier types of "Autogiro," as well as recent flights by Capt. Courtney on the machine now at Farnborough. Finally, a "slow-motion" film was shown, which had been intended to illustrate the vertical movement of the windmill blades, but this it rather failed to do. The films were marred to a great extent by bad projection, the operator failing to get his light centred, so that there was constantly a purplish cloud in the middle of the screen, and at times it was almost uncanny to watch the way in which the "Autogiro," looking for all the world like a spider, seemed to be making for the centre of this cloud, as if to hide itself therein. Although this was certainly rather amusing, it was scarcely the main object of the film, which was largely defeated by the very bad projection.

### The Discussion

At first it had been intended that the discussion should take the form of questions put by those taking part, which would be translated by Capt. Square into Spanish, Senor de la Cierva making his replies in Spanish, and they would then be translated into English by Capt. Square, but it was soon found that this would have taken too long, and it was ultimately decided that the various questions raised should be dealt with by Senor de la Cierva later and replied to in writing for publication in the Society's journal.

Mr. Locke wished to know whether it was possible under certain conditions for the windmill to stop in flight—for instance, at very high speed. He also desired to know which was the smallest angle of attack at which rotation was maintained, and he would also like to know whether it was possible to stop the windmill in flattening out after a dive. It had been stated that the machine could descend almost vertically. He would like to know if it would land vertically in still air, *i.e.*, in the absence of wind. Senor de la Cierva replied to these questions, via Capt. Square, that it was quite impossible to stop the windmill in flight, since there was always a forward speed and, therefore, a relative wind. A great deal of amusement was caused by the statement that if forward speed was stopped the machine would sink, and then there would be a vertical draft keeping the windmill rotating.

Maj. F. M. Green referred to a paper read by him a couple of years ago before the Royal Aeronautical Society, in which he had stated as his conviction that the helicopter did not appear to offer good possibilities for improvement over existing types. He was, therefore, glad that Senor de la Cierva had not called his machine a helicopter. He referred to the very ingenious mounting of the wings, by which all bending stresses were taken care of by centrifugal force, which turned all the stresses into purely tensile ones. There were certain problems in connection with the machine which he would like elucidated. For instance, he would like to know what variation in windmill speed was possible, *i.e.*, how fast and how slow it was possible to run them. Sir Sefton Brancker said that, from a conversation he had had a day or two before with the inventor of the "Autogiro," he would be able to reply to some of the questions at once. For instance, the tip speed of the windmill blades was always the same, so that if one built a big commercial machine with windmill blades of larger span and retaining the same tip speed, this would necessarily mean that the number of revolutions per minute of the windmill would be lower.

Mr. F. Handley Page said he first saw the "Autogiro" flying over Laffan's Plain. He was a passenger in the Handley Page "Hampstead," and his first view of the "Autogiro" in flight was from above. He was irresistibly reminded of the toys used by small boys, but, apparently, with the difference that this machine had a purpose in life. Before one could express an opinion of the "Autogiro," data were wanted concerning lift and resistance. He had seen the "Autogiro" referred to as a machine which landed on a roof. Presumably, that referred to flat roofs, since the majority of roofs in this country were rather too sharp to permit of landing on them with any machine. However, even assuming flat roofs, he would also like to know if it were possible for the machine to ascend vertically from such a roof by speeding up the windmill. He would like also to know what was the loading of the windmill blades, as this appeared to be somewhat high. It had been stated that the machine landed at very low horizontal speed. In normal types of aeroplanes one could also descend at very low landing speed, but this was obtained at the expense of top speed, and he would like to know if the same applied to the "Autogiro." In other words, for the same landing speed, what would be the top speed of the "Autogiro"; or, conversely, for the same top speed, what would be the landing speed? Again, Sir Sefton Brancker came to the rescue with a certain number of replies, although further details would be given by the inventor himself in the written replies which he will prepare. For instance, concerning the question of taking off, he was told that if the windmill was initially speeded up to about 120 r.p.m., the machine need only attain a forward speed of 20 m.p.h., before sufficient lift was attained for the machine to leave the ground. This, of course, would mean a very short run. He would also remind them of the fact that the machine tested at Farnborough was something like 600 lbs. heavier than the standard Avro, and with about one-half the wing area. Even so, the top speed was 68 m.p.h. As many of the parts employed in this experimental machine were needlessly heavy, he felt sure that much better results would be attained.

Prof. L. Bairstow said that much had been made of the very short landing run of the "Autogiro," and he thought that probably this particular feature of the machine was its greatest merit. At first, it seemed extraordinary that the machine was able to fly at a speed of some 15 or 20 m.p.h., but, when one began to examine the problem and found that the tips were travelling at somewhere between 150 and 200 m.p.h., one began to realise the possibilities of obtaining high unit lift. The future of the "Autogiro" would, of course, depend upon the load the machine would carry per h.p. developed, and the speed at which it could transport that load. In a normal aeroplane the work done could be represented by the drag of the machine, multiplied by the straight line distance between the starting and finishing point. In the "Autogiro" one would have to take the drag, multiplied, not by the straight line distance, but by the spiral distance through which the wings travelled, and it would therefore seem that the "Autogiro" must be less efficient than the normal type of aeroplane. He greatly admired the extreme mechanical simplicity of the machine, and the rotating windmill with hinged blades was an admirable device for reducing stresses. This seemed to be one of those very rare cases where nature presented her gifts to the inventor. This was obviously so in the manner in which centrifugal force reduced the wing stresses, or rather converted them into purely tensile stresses. The flapping up and down movement of the wings was necessary to the reduction of the stresses. If, as the inventor appeared to claim, this flapping was also beneficial from an aerodynamic point of view, this would appear to be another gift of nature.

Mr. W. O. Manning said that before one could express an opinion of the value of the Autogiro, it would be necessary to have L/D curves, so that one could ascertain the efficiency of the machine. He referred to the fact that the machine appeared to have a speed range of 4½ to 1, which he thought was the highest so far attained by any heavier-than-air craft.

Mr. Harris Booth said that he had been present at some of the test flights in Spain, and he had then asked all the questions he could think of, and all had been satisfactorily answered by the inventor. Before getting the machine to this country for testing they had stipulated certain conditions which had to be fulfilled Not only were all these conditions fulfilled but, actually, also a number of others which it had not occurred to them to stipulate. He thought there remained nothing more for him to do than to thank the lecturer for a most interesting paper.

Capt. W. H. Sayers referred to the enormous speed range of the "Autogiro," Mr. Manning had referred to a range of 4½ to 1. Actually, as the machine flew at 68 m.p.h. top speed, and at probably 10 m.p.h. low speed, the speed range was nearer 7 to 1. Nothing of the sort had, of course, ever been attained before, and it remained to be seen whether that speed range could be "stepped up." In other words, could one assume that if a landing speed of 50 m.p.h. was designed for, top speed would be 340 m.p.h., and so forth. He said there were a number of questions he would like to ask, some of which had already been asked by others, and a considerable number he would like to give careful consideration before

putting them, as he had not yet had time to go into the question thoroughly.

Mr. Hodgson asked permission to show some slides, but the Chairman reduced the number to one. This showed an idea of Mr. Hodgson's for a windmill machine, and it had been outlined in a paper read in 1915, before the Institute of Automobile Engineers. The design called for three of these windmills, and he wished the audience to realise that in England also, the idea of the windmill had been entertained quite a long time ago, and only lack of funds prevented him from building the machine.

Major Low thought that in the "Autogiro" no new theories were involved, and he thought the ordinary blade element theory would tell them all they wanted to know. The matter was somewhat further complicated by the horizontal travel of the machine, but there did not seem to be any fundamental changes in theory called for. He did not quite agree with Prof. Bairstow that the "Autogiro" would necessarily be less efficient than the normal type of machine.

Major H. E. Wimperis expressed the hope that the lecturer would include, in an appendix to his paper, most of the data which the various speakers had asked for. He himself had one question which he would like to ask. For instance, if a pilot wanted to commit suicide in an ordinary machine he would, presumably, take it up to a great altitude, put it into a long dive and then flatten out suddenly, thus breaking his wings and accomplishing his purpose. Now, what would be the position of a would-be suicide in the "Autogiro." Would he be able to do the same in that machine? He paid a tribute to Capt. Courtney for his pluck in flying the machine, and concluded by referring to the likeness of the "Autogiro" to the St. George's Cross. In this connection he called attention to a saying of another famous Spanish gentleman that "Behind the Cross stands the Devil."

Sir Sefton Brancker said that as regards Major Wimperis' pilot with suicidal tendencies, he regretted that in the "Autogiro" a pilot could not hurt himself. There was one drawback to the "Autogiro" that he foresaw, and that was that in a few years time we should have no skilled pilots, because it was so very easy to fly the "Autogiro." He would ask Senor de la Cierva to give an estimate of a commercial machine carrying a certain definite paying load to Paris. What would be the horse-power required to carry this load and what would be the amount of petrol consumed on the journey from London to Paris. Much had been made of the low speed feature of the "Autogiro," but while this was important it must not be attained at the sacrifice of other features. What they had to do was to avoid forced landings either by absolutely reliable engines or by a multiplicity of engines. If forced landings could be avoided, the question of very low landing speed was not quite so important. Fortunately, the "Autogiro" promised, so far as he could see, to do all the other things required, and still retain a very low landing speed. He thanked Senor de la Cierva for his very valuable contribution to the science of aeronautics, and the audience responded with loud applause, unequalled we think in the history of the Royal Aeronautical Society. A detailed report, containing the lecturer's replies will be published in the Society's Journal.

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# THE ROYAL AIR FORCE

*London Gazette, October, 20, 1925.*

*General Duties Branch*

Flight Cadet F. Priestman, having successfully passed through the R.A.F. Cadet College, Cranwell, is granted a perm. comm. as a Pilot Officer on probation, with effect from Sept. 30, and with seniority of July 30. Flying Officer J. D. I. Hardman, D.F.C., is granted a perm. comm. in rank stated (Sept. 30). R. A. Seaton is granted a short-service comm. as a Flying Officer, with effect from and with seniority of Sept. 1. (Substituted for *Gazette* Sept. 18.) The following Pilot Officers are promoted to rank of Flying Officer :—F. W. L. C. Beaumont (June 19); G. A. Simons (Sept. 3); R. W. E. Bryant, J. Summers, W. A. Tattersall (Sept. 14); C. R. Troup (Oct. 14). Flying Officer I. A. Bertram (Lieut., R.N., rtd.), is granted the honorary rank of Flight Lieut. (Oct. 2); Flight Lieut. R. E. Nicoll is transferred to Reserve, Class C. (Oct. 15); Flight-Lieut. J. A. Barron is placed on retired list at his own request (Oct. 21).

*Stores Branch*

The follg. Flying Officers are granted permanent commns. in rank stated (Oct. 21) :—F. W. van Blommestein, E. A. Slater, R. M. Thomas. Flying Officer R. D. Lambert is restored to full pay from half-pay (Sept. 22).

*Accountant Branch*

Flying Officer H. C. Roberts is granted acting rank of Flight-Lieut. from June 7, 1924, to Sept. 22, 1924, inclusive.

*Medical Branch*

R. J. K. Chattey is granted a short service commn. as a Flying Officer for three years on the active list, with effect from and with seny. of Sept. 28.

*Reserve of Air Force Officers*

The follg. are granted commns. in Class A.A., General Duties Branch, as Pilot Officers on probation :—J. Hill, C. W. Lofthouse, R. G. Shaw (Oct. 5); C. W. Carter (Oct. 6); H. S. Fulton, O. M. Sheil-Small (Oct. 7).

The follg. are confirmed in rank :—Flying Officers R. H. Mayo, O.B.E. (Sept. 25); J. C. McCormick (Oct. 2). Pilot Officer H. Jones (Sept. 11). Flying Officer S. H. H. Swanton is transferred from Class A to Class B (Sept. 11); Pilot Officer C. L. Atkinson is transferred from Class A to Class B (Aug. 4); Flying Officer E. M. Milling is transferred from Class A to Class C (Oct. 11); Flying Officer E. N. Hewitt is transferred from Class B to Class C (Oct. 15); Flying Officer R. A. Seaton resigns his commn. (Sept. 1). (Substituted for *Gazette* Sept. 18) The commission of Pilot Officer on probation E. Busby is terminated on cessation of duty (Sept. 20).

*Memoranda*

The follg. are granted temp. commns. as Flight-Lieuts. for duty under Director of the Meteorological Office (Oct. 2) :—R. P. Batty; R. G. Veryard Sec.-Lieut. C. M. Andrews relinquishes his hon. commn. on enlistment in the Army Supplementry Reserve.

## ROYAL AIR FORCE INTELLIGENCE

**Appointments.**—The following appointments in the Royal Air Force are notified :—

*General Duties Branch*

*Group Captain* E. F. Briggs, D.S.O., O.B.E., to H.Q., Inland Area, for Tech. Staff Duties, 25.10.25.

*Squadron Leaders :* H. E. M. Watkins, A.F.C., R.D., to R.A.F. Depot, on transfer to Home Estab., 4.10.25. C. N. Lowe, M.C., D.F.C., to No. 602 City of Glasgow Sq., 14.9.25.

*Flight Lieutenants :* H. G. Bowen, M.B.E., to No. 601 County of London Sqdn., 14.10.25. C. R. Keary, to No. 603 City of Edinburgh Sqdn., 14.10.25. The Hon. J. H. B. Rodney, M.C., to No. 600 City of London Sqdn., 14.10.25. G. Martyn, to No. 602 City of Glasgow Sqdn., 14.9.25. S. T. B. Cripps, D.F.C., to No. 25 Sqdn., Hawkinge., 13.10.25. R. H. Hanmer, M.C., to No. 84 Sqdn., Iraq, 2.10.25. R. St. H. Clarke, A.F.C., to R.A.F. Depot, 2.11.25. R. L. Crofton, M.B.E., to No. 47 Sqdn., Egypt, 4.10.25.

*Flying Officers :* (Hon. F./Lt.) D. S. Cairnes, to H.Q., Halton, 22.10.25. N. T. Goodwin, to No. 31 Sqdn., India, instead of to Aircraft Depot, as previously notified, 9.9.25. C. C. Harris, to No. 5 Sqdn., India, instead of to Aircraft Depot, as previously notified, 9.9.25. C. S. Whellock, to No. 14 Sqdn., Palestine, 2.10.25. R. N. Hesketh, to Inland Area Aircraft Depot, Henlow, 29.10.25.

*Pilot Officers :* H. W. Raeburn, to No. 60 Sqdn., India, instead of to Aircraft Depot, as previously notified, 9.9.25. H. B. Barrett, to No. 31 Sqdn., India, instead of to Aircraft Depot, as previously notified, 9.9.25. D. J. Lloyd, to No. 60 Sqdn., India, instead of to Aircraft Depot, as previously notified, 9.9.25. W. J. R. Early, to No. 3 Sqdn., Upavon, 26.10.25. L. A. Egglesfield and H. Walker, to Aden Flight, 3.10.25. A. C. Evans-Evans, to No. 14 Sqdn., Palestine, 29.8.25. J. H. McC. Reynolds, to Meteorological Flight, Duxford, 13.10.25.

*Stores Branch*

*Flight Lieutenant* D. W. Wilson, to Aden Flight, 3.10.25.

*Flying Officers :* G. Scarrott, to No. 603 City of Edinburgh Sqdn., 14.10.25. E. G. Keeping, to remain at Inland Area Aircraft Depot, instead of to No. 1 Stores Depot, as previously notified. F. D. D. Gaussen, to No. 1 Stores Depot, Kidbrooke, 19.10.25. A. J. Adams, to H.Q., Spec. Reserve and Auxiliary Air Force, 26.10.25. E. A. Burridge, to No. 3 Stores Depot, Milton, 14.10.25.

*Accountant Branch*

*Flight Lieutenant* I. L. Wincer, to H.Q., Egypt, 1.10.25.

*Pilot Officers :* F. Rigby, to No. 29 Sqdn., Duxford, 11.10.25. T. P. E. Campbell, to Inland Area Aircraft Depot, Henlow, 11.10.25. J. O. Morrison, to Marine Aircraft Experimental Estab., Felixstowe, 11.10.25. R. J. Wishlade to Elec. and Wireless Sch., Flowerdown, 11.10.25.

*Medical Branch*

*Flight Lieutenant* (Hon. S./Ldr.) W. R. Reith, M.D., A.M., to R.A.F. Depot, 19.10.25.

*Flying Officer* R. J. K. Chattey, to R.A.F. Depot, 22.10.25.

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### Mussolini and Flying

ACCORDING to the correspondent of the *Daily Mail*, when Sig. Mussolini flew from Gaeta to Rome last week, he received a latter from Sig. Farinacci in the name of all Italian Fascisti, asking him never to fly again, as his life was no longer his, but all Italy's. Replying, Sig. Mussolini began the letter with "Dear Farinacci." Then followed a sketch of an aeroplane in flight, and underneath in capital letters : "To fly is necessary.

"(Signed) Mussolini, Minister of Air."

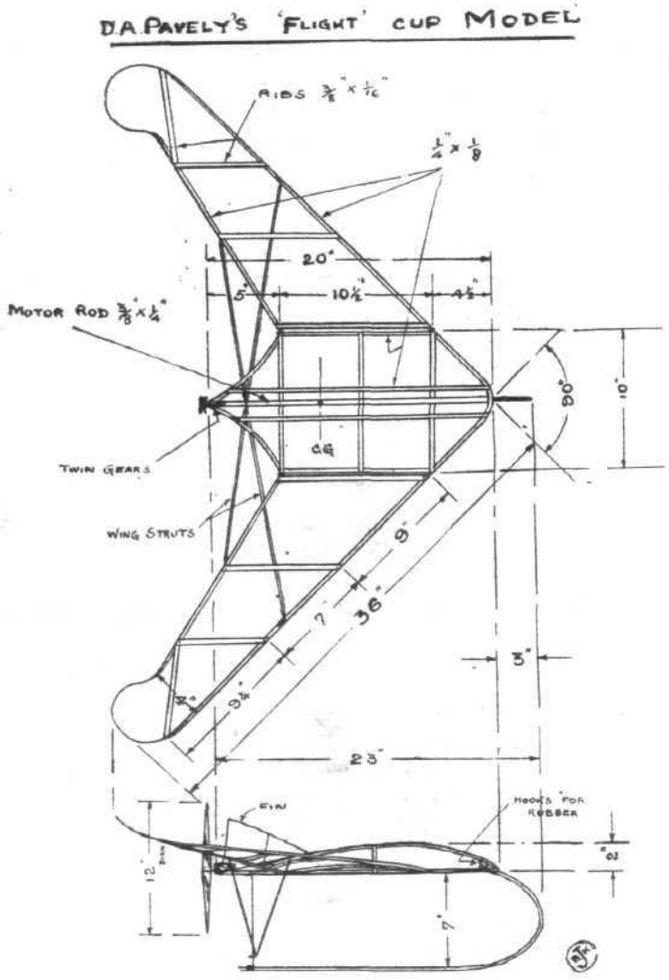
## SOCIETY OF MODEL AERONAUTICAL ENGINEERS

### The 1925 "Flight" Cup Competition

1923 and 1924 saw the "FLIGHT" Cup offered for a duration competition for "weight-lifting" models. This year, however, it was decided to branch out in a new direction, with the result that a competition was introduced for models consisting of a "wing only" (*i.e.*, no separate tail plane or fuselage to be used, and the motive power to be totally enclosed in the wing). The other conditions will be found in FLIGHT of April 9. The results were to be obtained from the formula :—

best duration in seconds × $\sqrt{\text{loading in ounces per sq. ft.}}$

The competition took place at the Sudbury flying ground on September 12, and, owing to its novel and somewhat




difficult character, it was not surprising that only a few competitors took part. Five entries had been received, but only three machines appeared on the ground to take part in the competition. Nevertheless, even though there was not quantity with respect to the machines, there was undoubtedly quality, and the two efforts on the part of Mr. Pavely and Mr. Hersom were distinctly praiseworthy.

September 12 proved a very suitable day for flying, and after the necessary "tuning up" the competition was flown off, with the following results :—

| | Weight. | $\sqrt{\text{Loading}}$. | Duration. | D × $\sqrt{L}$ |
|---|---|---|---|---|
| 1. D. A. Pavely .. | 10 ozs. | 2·33 | 21 secs. | 48·9 |
| 2. S. C. Hersom .. | 11 ozs. | 2·29 | 11 secs. | 25·1 |

There was, however, very little between these two machines, although perhaps at first sight the actual figures would not indicate this, but Mr. Hersom was unfortunate in not obtaining such good flights in the actual competition as he was getting previously in some of his test flights.

A drawing of Mr. Pavely's winning model is given herewith, and, as will be seen, it consists of one main heavily-cumbered centre section, with outgrowing swept-back planes on either side, the whole forming a complete wing. Within the centre section is contained the double-skeined side-by-side rubber motor transmitting by gears to a 12-in. diameter propeller. Constructional details of the model will be gathered from the dimensioned plan and elevation views.

Whereas this model was of the "pusher" type, Mr. Hersom's was a "tractor," which was very ingeniously constructed ; the two planes which constituted the "wing only" were severely swept back, but the chief characteristic was the use of a rubber motor inside each double-surfaced plane, driving by means of bevel gearing the tractor screw. Altogether this machine was a very nice piece of work, but space does not permit a full description of the model.

In conclusion, therefore, Mr. Pavely holds the Cup this year, and it may be mentioned also that the competition was an undoubted success and that its originality provided a generally approved change from the existing orthodox types of model competition.

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# PERSONALS

### Married

Flying Officer DARRELL CLINTON BURNLEY, R.A.F., younger son of Mr. and Mrs. A. C. BURNLEY, 142, Coleherne Court, Kensington, S.W., was married on October 19 at Bombay Cathedral, to MARGERY, younger daughter of Mr. and Mrs. A. STOUGHTON-HARRIS, Moorcroft, Epsom.

### To be Married

The engagement is announced between Flight-Lieut. ALICK CHARLES STEVENS, R.A.F., only son of Mr. and Mrs. C. E. R. Stevens, of Jersey, C.I., and BERYL, youngest daughter of Mr. and Mrs. B. J. GATES, of Wing Park, Wing, Bucks.

### Death

Group Captain CECIL FRANCIS KILNER ("Jo"), D.S.O., A.D.C., R.A.F., who died on October 20, at his home, 16, Beaumont Street, W., after many months of suffering, was the elder and only surviving son of the late William A. Kilner, and Frances E. Kilner. The funeral took place at Kensal Green Cemetery on October 22 at Kensal Rise. Among those who attended were Air Vice-Marshal C. A. H. Longcroft Director of Personal Services (representing the Secretary of State for Air) and Air Vice-Marshal Sir Philip Game, Air Member for Personnel (representing the Air Council).

### Item

ON the death of Lord Marchamley, formerly Mr. George Whiteley, his eldest son, Major W. T. Whiteley, late R.A.F., succeeds to the title.

* * * *

## PUBLICATIONS RECEIVED

*Welding Cast Iron.* The Suffolk Iron Foundry (1920) Ltd., Gipping Works, Stowmarket.

*The German Air Raids on Great Britain*, 1914–1918. By Capt. J. Morris. Sampson, Low, Marston & Co., Ltd., 100, Southwark Street, London, S.E.1. Price, 16*s.* net.

*Annual Report of the Smithsonian Institution* : 1923. The Smithsonian Institution, Washington, D.C., U.S.A.

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## AERONAUTICAL PATENT SPECIFICATIONS

*Abbreviations* : Cyl. = cylinder ; i.c. = internal combustion ; m. = motor
The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

### APPLIED FOR IN 1924.

*Published October 29, 1925*

18,721. S. A. REED. Air propellers. (240,594.)
25,430. DOUGLAS MOTORS, LTD., and S. L. BAILEY. Stationary i.c. engines (240,662.)


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